Analysis and Differential Geometry Seminar

Quermassintegrals inequalities and curvature measure problem

Professor Junfang Li
University of Alabama at Birmingham

Abstract: We will present some recent joint work on two different but related problems: quermassintegral inequalities and prescribing curvature measure problem. We use a parabolic fully nonlinear partial differential equation to prove isoperimetric inequalities for quermassintegrals on a starshaped bounded domain. On the other hand, curvature measure can be viewed as a local version of the quermassintegrals. The general k-th prescribing curvature measure problem is equivalent to a second order fully nonlinear elliptic partial differential equation defined on a unit sphere. It has been an open problem for the existence of an admissible solution of this equation. The major new contribution of our recent work is the a priori $C^2$ estimates for admissible solutions which leads to the existence theorems.

Tuesday, October 5, 2010, 4:00 pm
Mathematics and Science Center: W301

Mathematics and Computer Science
Emory University